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FOREST PRODUCTS LABORATORY
LIST OF PUBLICATIONS
ON
THE CHEMISTRY OF WOOD
September 1968

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FOREST PRODUCTS LABORATORY LIST OF PUBLICATIONS

ON

THE CHEMISTRY OF WOOD

1945 - 1968

This list includes publications that give general information and results of research by the U.S. Forest Service on the analysis, chemical and physical properties, and conversion processes of wood and wood products. Since the material is difficult to classify and titles are not multiple listed, we suggest that you examine the entire contents.

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INSTRUCTIONS FOR OBTAINING PUBLICATIONS

Publications without an asterisk (*) are available for distribution at this Laboratory. Single copies of reprints and reports may be obtained free upon request from the Director, Forest Products Laboratory, Madison, Wis. 53705.

Federal Government publications, if not available for free distribution at this Laboratory, may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, at the price indicated. Send money order, draft, or cash; stamps or personal checks are not accepted.

Trade journals or books may often be purchased from the publishers or may be consulted in various libraries.

The Forest Products Laboratory reserves the right to furnish only those publications that, in its judgment, will give the information requested. Blanket requests or requests for a large number of copies of any individual article will not be filled, except in unusual cases.

ANALYSIS OF WOOD AND WOOD PRODUCTS

Title	Author	Publication and Date
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Separation of resin from fatty acid methyl esters by gel-permeation chromatography.	: Zinkel, D. F., & : Zank, L. C.	: Anal. Chem. 40: : 1144-1146, June 1968.
Preparation and gas chromatography of the trimethylsilyl derivatives of resin acids and the corresponding alcohols:	: Zinkel, D. F., : Lathrop, M. B., & : Zank, L. C.	: J. Gas Chromatogr. 6(3): : 158-160, Mar. 1968.
Quantitative gas-liquid chromatography of fatty and resin acid methyl esters.	: Nestler, F.H.M., : & Zinkel, D. F.	: Anal. Chem. 39: : 1118-1124, Aug. 1967.
Ultraviolet spectrophotometric determination of hexoses, pentoses, and uronic acids after their reaction with concentrated sulfuric acid.	: Scott, R.W., : Moore, W. E., : Effland, M. J., & : Millett, M. A.	: Anal. Biochem. 21(1): : 68-80, 1967.
The resistance of hemicelluloses in wood fiber to degradation by ozone.	: Moore, W.E., : Effland, M., : Sinha, Biswajit, : Burdick, M.P., & : Schuerch, C.	: Tappi 49(5): 206-209, : May 1966.
Spreader for the preparation of uniform plates for thin-layer chromatography.	: Moore, W.E., & : Effland, M.J.	: U.S. Forest Serv. Res. : Note FPL-0119, 5 pp., : 1966.
Chemotaxonomy as an aid in differentiating wood of eastern and western white pine.	: Seikel, M. K., : Hall, S. S., : Feldman, L.C., & : Koeppen, R.C.	: Amer. J. Bot. 52(10): : 1046-1049. Nov.-Dec. : 1965.
Differentiating phenols from certain inorganic ions by paper chromatography.	: Steelink, C., : Seikel, M.K., & : Downes, F.H.	: Nature 206(4983): 614, : 1965.

ANALYSIS OF WOOD AND WOOD PRODUCTS (continued)

Title	Author	Publication and Date
Notes on semimicro preparative thin-layer chromatography.	Seikel, M.K., Millett, M.A., & Saeman, J.F.	J. Chromatog. 15(1): 115-118, June 1964.
Techniques for quantitative thin layer chromatography.	Millett, M. A., Moore, W.E., & Saeman, J. F.	Anal. Chem. 36(3): 491-494, Mar. 1964.
Thin-layer chromatography of resin acid methyl esters.	Zinkel, D.F., & Rowe, J.W.	J. Chromatog. 13: 74-77, Jan. 1964.
A rapid method for the quantitative separation without alteration of ether-soluble acidic and neutral materials.	Zinkel, D.F., & Rowe, J.W.	Anal. Chem. 36(6): 1160-1161, 1964.
Separation of the methyl esters of resin acids by gas liquid chromatography.	Nestler, F.H.M., & Zinkel, D.F.	Anal. Chem. 35(11): 1747-1749, Oct. 1963.
*Sugar units present--Hydrolysis and quantitative paper chromatography.	Saeman, J.F., Moore, W.E., & Millett, M.A.	"Methods in Carbohydrate Chemistry," Vol. III, Cellulose; Sec. II, Chap. 12, pp. 54-69. Academic Press, New York, N.Y. 1963.
Determination of lignin by hydrofluoric acid.	Clark, I. T.	Tappi 45(4): 310-314, Apr. 1962.
Spectrophotometric determination of furfural in the presence of sulfur dioxide.	Harris, J.F., & Zoch, L.L.	Anal. Chem. 34:201-203, Feb. 1962.

*Not available at Forest Products Laboratory.

ANALYSIS OF WOOD AND WOOD PRODUCTS (continued)

Title	Author	Publication and Date
*The spectrophotometric determination of lignin in small wood samples.	: Johnson, D.B., : Moore, W.E., & : Zank, L.C.	: Tappi 44(11): 793-798, : Nov. 1961.
*A sample applicator for chromatographic paper and its use for 5-hydroxymethyl-2-furaldehyde and levulinic acid analysis.	: McKibbins, S.W., : Harris, J.F., & : Saeman, J.F.	: J. Chromatog. 5(3): : 207-216, May 1961.
A method of charcoal analysis.	: Moore, W.E., & : Beglinger, E.	: Forest Prod. J. 11(1): : 17-19, Jan. 1961.
Chromatographic analysis of sugar alcohols and glycols.	: Moore, W.E., : Effland, M. J., : Johnson, D.B., : Daugherty, M. A., : & Schwerdtfeger, : E. J.	: Appl. Microbiol. 8(3): : 169-173, May 1960.
Separation of glycerol from a polyhydric alcohol mixture by nonionic exclusion.	: Clark, I. T.	: Anal. Chem. 30: : 1676-1678, Oct. 1958.
*Techniques for the determination of pulp constituents by quantitative paper chromatography.	: Saeman, J.F., : Moore, W.E., : Mitchell, R.L., : & Millett, M.A.	: Tappi 37(8): 336-343, : Aug. 1954.
Chemical analyses of wood.		: FPL Tech. Note 235. : Rev. 1952.
Method for isolation of hemicelluloses directly from maple wood.	: Rogers, S.C., : Mitchell, R.L., : & Ritter, G.J.	: Anal. Chem. 19:1029, : Dec. 1947.

*Not available at Forest Products Laboratory.

ANALYSIS OF WOOD AND WOOD PRODUCTS (continued)

Title	Author	Publication and Date
*Analysis of wood sugars.	Saeman, J.F., Harris, E.E., & Kline, A.A.	Ind. Eng. Chem. (Anal. Ed.) 17:95, Feb. 1945.

CHEMICAL PROPERTIES OF WOOD

Cellulose

Accelerated aging of cellulosic materials: Design and application of a heating chamber.	Millett, M.A., Western, L.J., & Booth, J.J.	Tappi 50(11): 74A-80A, Nov. 1967.
Partial hydrolysis and acetolysis of cellotriose-1-C ¹⁴ .	Feather, M.S., & Harris, J.F.	J. Amer. Chem. Soc. 89 (22): 5661-5664, Oct. 25, 1967.
The preparation and purification of cellobiose-1-C ¹⁴ .	Feather, M.S., & Harris, J.F.	U. S. Forest Serv. Res. Note FPL-0168, 6 pp., 1967.
Chromatographic isolation of some cellulose oligosaccharides.	Feather, M.S., & Harris, J.F.	U. S. Forest Serv. Res. Note FPL-0161, 8 pp., 1967.
Synthesis and properties of anomerically unsubstituted hepta- <u>O</u> -acetyl disaccharides.	Rowell, R.M., & Feather, M.S.	Carbohydr. Res. 4: 486-491, 1967.
*The alkaline decomposition of 2, 3, 4-tri-0-methyl-D-glucose and 2-0-methyl-cellobiose.	Lindberg, B., Theander, O., & Feather, M.S.	Acta Chem. Scand. 20 (1966): 206-210,
Modification of cellulose fine structure--effect of thermal and electron irradiation pre-treatments.	Millett, M.A., & Goedken, V.L.	Tappi 48(6): 367-371, June 1965.

*Not available at Forest Products Laboratory.

CHEMICAL PROPERTIES OF WOOD (continued)

Cellulose (continued)

Title	Author	Publication and Date
*Hydrocellulose.	Saeman, J. F., & Millett, M. A.	"Methods in Carbohydrate Chemistry," Vol. III, Cellulose; Sec. IV, Chap. 22, pp. 131-134, Academic Press, New York, N.Y. 1963.
Nuclear magnetic resonance studies on several cellulose-water systems.	Swanson, T., Stejskal, E.O., & Tarkow, H.	Tappi 45(12): 929-932, Dec. 1962.
Kinetics of the thermal degradation of cellulose nitrate as measured by an improved Taliani procedure.	Millett, M. A., Seborg, R.M., Zoch, L.L., & Masuelli, F.J.	Tappi 44(9): 636-647, Sept. 1961.
Nitration of cellulose in anhydrous mixtures of nitrogen tetroxide and hydrogen fluoride.	Clark, I.T., & Millett, M.A.	Tappi 44(2): 144-146, Feb. 1961.
*Measurement of ion-exchange capacity of some wood pulps and nitro pulps.	Millett, M.A., Schultz, J.S., & Saeman, J.F.	Tappi 41(10): 560-567, Oct. 1958.
Kinetics of the stabilization of cellulose nitrate.	Millett, M.A., Saeman, J.F., & Masuelli, F.J.	Tappi 41(9): 469-481, Sept. 1958.
Preparation and properties of hydrocelluloses.	Millett, M.A., Moore, W.E., & Saeman, J.F.	Ind. Eng. Chem. 46(7): 1493-1497, July 1954.

*Not available at Forest Products Laboratory.

CHEMICAL PROPERTIES OF WOOD (continued)

Cellulose (continued)

Title	Author	Publication and Date
Effect of high-energy cathode rays on cellulose.	Saeman, J.F., Millett, M.A., & Lawton, E.J.	Ind. Eng. Chem. 44:2848, Dec. 1952.
*Cellulose solvents and the properties of cellulose in solution.	Stamm, A.J.	"Wood Chemistry," Ed. 2, Vol. I, Chap. 8, pp. 226-277. Reinhold Pub. Corp., New York N.Y., 1952.
*The exchange of radioactive zinc between cellulose and sodium hydroxide-sodium zincate solutions.	Borgin, K., & Stamm, A.J.	J. Phys. Colloid Chem. 54(6): 772-777, June 1950.
*Refined neutral sulfite semi-chemical pulps from Douglas fir.	Peterson, H.E., Bray, M.W., & Ritter, G.J.	Paper Trade J. 121(2): 37, July 1945.

Extraneous Components

New sesquiterpenes from yellow wood of slippery elm.	Fracheboud, M., Rowe, J.W., Scott, R.W., Fanega, S.M., Buhl, A.J., & Toda, J.K.	Forest Prod. J. 18(2): 37-40, Feb. 1968.
Lignans of <u>Ulmus thomasii</u> heartwood. I. Thomasic acid:	Seikel, M.K., Hostettler, F.D., & Johnson, D.B.	Tetrahedron 24: 1475-1488, 1968.
The structure and the stereochemistry of abieslactone.	Uyeo, S., Okada, J., Matsunga, S., & Rowe, J.W.	Tetrahedron 24: 2859-2880, 1968.

*Not available at Forest Products Laboratory.

CHEMICAL PROPERTIES OF WOOD (continued)

Extraneous Components (continued)

Title	Author	Publication and Date
Extractives of jack pine bark: occurrence of (+)-13-epimanoyl oxide and related labdane diter- penes.	: Bower, C.L., & Rowe, J.W.	: Phytochem. 6: 151-153, 1967.
The glycoflavonoid pigments of <u>Vitex lucens</u> wood.	: Seikel, M.K., : Chow, J.H.S., & : Feldman, L.	: Phytochem. 5: 439-455, 1966.
*A new type of glycoflavonoid from <u>Vitex lucens</u> .	: Seikel, M.K., & : Mabry, T. J.	: Tetrahedron Letters No. 16: 1105-1109, 1965.
Polyphenols of pine pollens: A survey.	: Strohl, M.J., & : Seikel, M.K.	: Phytochem. 4: 383-399, 1965.
The sterols of pine bark.	: Rowe, J.W.	: Phytochem. 4(1): 1-10, 1965.
Structures of contortadiol (agathadiol), contortolal (agatholal), and Hydroxy- epimanol (epitorulosol).	: Rowe, J.W., & : Shaffer, G.W.	: Tetrahedron Letters No. 30: 2633-2637, 1965.
Triterpenes of pine barks: Naturally occurring derivatives of serratenediol.	: Rowe, J.W., & Bower, C.L.	: Tetrahedron Letters No. 32: 2745-2750, 1965.
Benzene extractives of lodgepole pine bark. Isolation of new diterpenes.	: Rowe, J.W., & : Scroggins, J.H.	: J. Organic Chem. 29(6): 1554-1562, June 1964.
Eudesmol isomers from <u>Cordia</u> <u>trichotoma</u> wood.	: Seikel, M.K., & : Rowe, J.W.	: Phytochem. 3(1): 27, Jan. - Mar. 1964.

*Not available at Forest Products Laboratory.

CHEMICAL PROPERTIES OF WOOD (continued)

Extraneous Components (continued)

Title	Author	Publication and Date
Triterpenes of pine barks:	: Rowe, J. W.	: Tetrahedron Letters
Identity of pinusenediol and serratenediol.	:	: No. 34: 2347-2353, 1964.
	:	:
Extraction and identification of lipids from loblolly pine pollen:	: Scott, R. W., & Strohl, M. J.	: Phytochem. 1(3):189-193, Sept. 1962.
Conversion of dihydroquercetin to eriodictyol.	: Pew, J. C.	: J. Organic Chem. 27(8): 2935-2936, Aug. 1962.
Chemical brown stain in sugar pine.	: Millett, M. A.	: Forest Prod. J. 2(5): 232-236, Dec. 1952.
*Durability of western red cedar heartwood.	: Anderson, A. B.	: Wood (Chicago) 4(10): 38-41, Oct. 1949.
*Molecular properties of water-soluble polysaccharides from western larch.	: Borgin, G. L.	: J. Amer. Chem. Soc. 71(6): 2247-2248, June 1949.
*Douglas-fir heartwood flavonone.	: Pew, J. C.	: Tappi 32(1): 39-41, 1949.
*Extractives of Douglas-fir and Douglas-fir lignin residue.	: Clark, I. T., Hicks, J. R., & Harris, E. E.	: J. Amer. Chem. Soc. 69: 3142-3143, Dec. 1947.

Hemicellulose

The persistence of wood xylan and mannan through successive prehydrolysis, pulping, purification, and nitration.	: Mitchell, R. L., Millett, M. A., Moore, W. E., & Saeman, J. F.	: Tappi 39(8): 571-575, Aug. 1956.
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*Not available at Forest Products Laboratory.

CHEMICAL PROPERTIES OF WOOD (continued)

Hemicellulose (continued)

Title	Author	Publication and Date
Galactan in western larch wood.	Mitchell, R.L., & Ritter, G.J.	Forest Prod. J. 3 (1): 66-68, Feb. 1953. FPL Rep. 1771. 1950. +1964.
Hemicelluloses from maple holocellulose.	Mitchell, R.L., Rogers, S.C., & Ritter, G. J.	Ind. Eng. Chem. 40:1528, Aug. 1948.
*Molecular properties of hemi- cellulose fractions.	Millett, M.A., & Stamm, A. J.	J. Phys. Colloid Chem. 51: 134-148, Jan. 1947.

Lignin

Gas chromatographic analysis of phenols from lignin.	Clark, I.	J. Gas Chromatogr. 6: 53-55, Jan. 1968.
Production of phenols by cooking kraft lignin in alkaline solutions.	Clark, I. T., & Green, Jesse	Tappi 51(1): 44-48, Jan. 1968.
New structures from the dehydrogenation of model com- pounds related to lignin.	Pew, J.C., & Connors, W.J.	Nature 215 (5101): 623-625, Aug. 5, 1967.
*Lignin--a natural polymeric product of phenol oxidation.	Harkin, J.M.	Organic substances of natural origin, vol. 2, Oxidative coupling, Chap. 6, pp. 243-315. Ed. A.R. Battersby and W.I. Taylor. Marcel Dekker, Inc., N.Y. 1967.

*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

CHEMICAL PROPERTIES OF WOOD (continued)

Lignin (continued)

Title	Author	Publication and Date
*Biological polymers related to catechol: Electron paramagnetic resonance and infrared studies of melanin, tannin, lignin, humic acid, and hydroxyquinones.	Tollin, G., & Steelink, C.	Biochim. et Biophys. Acta 112: 377-379, 1966.
Lignin production and detection in wood.	Harkin, J.M.	U.S. Forest Serv. Res. Note FPL-0148, 2 pp., 1966.
*A solid phenoxy radical from disyringylmethane--a model for lignin radicals.	Steelink, C., & Hansen, R.E.	Tetrahedron Lett. No. 1: 105-111, 1966.
*Stable phenoxy radicals derived from phenols related to lignin.	Steelink, C.	J. Amer. Chem. Soc. 87(9): 2056-2057. May 1965.
*Enzymatic dehydrogenation of lignin model phenols.	Pew, J.C., Connors, W.J., & Kunishi, A.	Chim. et Biochim. de la Lignine, de la Cell. et des Hemicell. Int. Symp. Proc., pp. 229-245, Grenoble, France, 7/64.
Chromatographic separation of phenols on ion-exchange paper.	Clark, I. T.	J. Chromatog. 15(1): 65-69, June 1964.
Lignin.		U.S. Forest Serv. Res. Note FPL-079, 2 pp., 1964.
Evidence of a biphenyl group in lignin.	Pew, J.C.	J. Organic Chem. 28: 1048-1054, Apr. 1963.
*Not available at Forest Products Laboratory.		

CHEMICAL PROPERTIES OF WOOD (continued)

Lignin (continued)

Title	Author	Publication and Date
Fine grinding, enzyme digestion: and the lignin-cellulose bond in wood.	Pew, J.C., & Weyna, P.	: Tappi 45(3): 247-256, Mar. 1962.
Biphenyl group in lignin.	: Pew, J.C.	: Nature 193(4812): 250-252, Jan. 1962.
Properties of powdered wood and isolation of lignin by cellulytic enzymes.	: Pew, J.C.	: Tappi 40(7): 553-558, July 1957.
*Chemical research on the utilization of lignin.	: Harris, E.E.	: Forest Prod. J. 5(5): 345-351, Oct. 1955.
*Nitrobenzene oxidation of lignin model compounds, spruce wood, and spruce "native lignin."	: Pew, J.C.	: J. Amer. Chem. Soc. 77(10): 2831, May 1955.
*Highlights in the chemistry of lignin--1943-1954.	: Harris, E.E.	: Forest Prod. J. 5(1): 26-31, Feb. 1955.
*A lignin-carbohydrate bond in wood.	: Harris, E.E.	: Tappi 36(9): 402-405, Sept. 1953.
*Products from the destructive distillation of Douglas-fir lignin.	: Fletcher, T.L., & Harris, E.E.	: Tappi 35(12): 536-539, Dec. 1952.
Color reactions of lignin in solution compared to similar reactions in the solid state.	: Pew, J.C.	: J. Amer. Chem. Soc. 74(22): 5784-5785, Nov. 1952.
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CHEMICAL PROPERTIES OF WOOD (continued)

Lignin (continued)

Title	Author	Publication and Date
*Structural aspects of the color reaction of lignin with strong acid.	Pew, J.C.	J. Amer. Chem. Soc. 74(11): 2850-2856, June 1952.
Structural aspects of the color reaction of lignin with phenols.	Pew, J.C.	J. Amer. Chem. Soc. 73(4): 1678-1685, Apr. 1951.
Hydrogenation of Douglas-fir lignin.	Clark, I.T., Hicks, J.R., & Harris, E.E.	Tappi 34(1): 6-11, Jan. 1951.
*Lignin for better crops.	Harris, E.E.	"Crops in Peace and War," The Yearbook of Agriculture--1950-1951, pp. 883-885. Available from Sup. of Doc., Gov. Printing Office, Washington, D.C. 20402, at \$2.50.
*Lignin hydrogenation products.	Harris, E.E., Saeman, J.F., & Bergstrom, C.B.	Ind. Eng. Chem. 41(9): 2063-2067, Sept. 1949.
*Destructive distillation of Douglas-fir lignin.	Fletcher, T.L., & Harris, E.E.	J. Amer. Chem. Soc. 69: 3144-3145, Dec. 1947.
*Hydrogenation of lignin over Raney nickel.	Saeman, J.F., & Harris, E.E.	J. Amer. Chem. Soc. 68(12): 2507-2509, Dec. 1946.
*Not available at Forest Products Laboratory.		

CHEMICAL PROPERTIES OF WOOD (continued)

Wood and Bark

Title	Author	Publication and Date
Bark and its possible uses.		: U.S. Forest Serv. Res. : Note FPL-091. 1965.
Chemistry of western white pine bark.	: Nickles, W.C., & : Rowe, J.W.	: Forest Prod. J. 12(8): : 374-376, Aug. 1962.
*Thermal degradation of wood and cellulose.	: Stamm, A.J.	: Ind. Eng. Chem. 48(3): : 413-417, Mar. 1956.
Chemistry of hickory.	: Mitchell, R.L.	: Hickory Task Force : Rep. 2, Sept. 1955. : Southeast. Forest Exp. : Sta., Forest Serv., : USDA, Asheville, N.C. : 28802.
Chemical composition of common North American pulp-wood barks.	: Chang, Y., & : Mitchell, R.L.	: Tappi 38(5): 315-320, : May 1955.
*Effect of heat on the properties and chemical composition of Douglas-fir wood and its major components.	: Mitchell, R.L., : Seborg, R.M., & : Millett, M.A.	: Forest Prod. J. 3(4): : 38-42, 72-73, Nov. 1953.
Chemistry and chemical utilization of beech.	: Ritter, G.J.	: Beech Util. Series 4., : 1952. Northeast Tech. : Com. on the Util. of : Beech, Northeast Forest : Exp. Sta., Forest Serv., : USDA, Upper Darby, Pa. : 19082.

*Not available at Forest Products Laboratory.

CHEMICAL PROPERTIES OF WOOD (continued)

Wood and Bark (continued)

Title	Author	Publication and Date
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Chemical utilization of aspen.	: Ritter, G.J., & : Hossfield, R.L. : : :	: Lake States Aspen Rep. 18, : 1947. North Central : Forest Exp. Sta., Forest : Serv., USDA, St. Paul, : Minn. 55101.

CONVERSION OF WOOD

Biochemical Conversion

Outside storage of hardwood chips in the Northeast. I.	: Hajny, G.J., : Jorgensen, R.N., : & Ferrigan, J.J.	: Tappi 50(2): 92-96, : Feb. 1967.
Physical and chemical effects.	: : :	: : :
Outside storage of pulpwood chips--a review and bibliography.	: Hajny, G. J. : : :	: Tappi 49(10): 97A-105A, : Oct. 1966. : :
Pilot plant glycerol production with a slow-feed osmophilic yeast fermentation.	: Button, D.K., : Garver, J.C., & : Hajny, G.J. : :	: Appl. Microbiol. 14(2): : 292-294, March 1966. : :
Erythritol production by a yeastlike fungus.	: Hajny, G. J., : Smith, J.H., & : Garver, J.C. : :	: Appl. Microbiol. 12(3): : 240-246, May 1964. : :
D-Arabitol production by <u>Endomycopsis chodati</u> .	: Hajny, G.J. : : :	: Appl. Microbiol. 12(3): : 87-92, Jan. 1964. : :
Food-yeast production from wood-processing byproducts.	: : : :	: U.S. Forest Serv. Res. : Note FPL-065, Rev. 1964. : :

CONVERSION OF WOOD (continued)

Biochemical Conversion (continued)

Title	Author	Publication and Date
Factors affecting glycerol production by a newly isolated osmophilic yeast.	Hajny, G.J., Hendershot, W.F., & Peterson, W.H.	Appl. Microbiol. 8(1): 5-11, Jan. 1960.
Glycerol production: A pilot-plant investigation for continuous fermentation and recovery.	Harris, J.F., & Hajny, G.J.	J. Biochem. Microbiol. Tech. Eng. 2(1): 9-24, 1960.
*A technical review of developments in microbiological utilization of wood sugars.	Hajny, G.J.	Forest Prod. J. 9(5): 153-157, May 1959.
Factors affecting production of glycerol and D-Arabitol by representative yeasts of the genus <u>Zygosaccharomyces</u> .	Peterson, W.H., Hendershot, W.F., & Hajny, G.J.	Appl. Microbiol. 6(5): 349-357, Sept. 1958.
Wood molasses for stock and poultry feed.		FPL Rep. 1731. 1955. +1960.
Polyhydric alcohols from wood.	Hall, J.A.	FPL Rep. 1984. 1954.
*The production of alcohol from wood waste.	Saeman, J.F., & Andreassen, A.A.	"Indus. Fermentations," Vol. 1, Chap. 5, pp. 136-171. Chem. Publishing Co., New York, N.Y. 1954.
*Production of livestock feed from wood waste.	Harris, E.E.	Forest Prod. J. 1(1): 43-48, Sept. 1951.
Protein evaluations of yeast grown on wood hydrolyzate.	Harris, E.E., Hajny, G.J., & Johnson, M.C.	Ind. Eng. Chem. 43(7): 1593-1596, July 1951.

*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

CONVERSION OF WOOD (continued)

Biochemical Conversion (continued)

Title	Author	Publication and Date
Thermophilic fermentation of cellulosic and lignocellulosic materials.	Hajny, G.J., Gardner, C.H., & Ritter, G.J.	Ind. Eng. Chem. 43(6): 1384-1389, June 1951.
Production of nutritive substances from inedible carbohydrates.	Stamm, A.J.	Amer. Phil. Soc. Proc. 95(1): 68-76, Feb. 1951.
*Wood-sugar molasses as a means of utilizing wood residues and providing high-energy stock feed.	Harris, E.E.	Wood Working Digest 50 (12): 97-100, Dec. 1948; Wood Prod. 54(1): 28-30, Jan. 1949.
*Acclimatization of yeast to wood sugar.	Johnson, M.C., & Harris, E.E.	J. Amer. Chem. Soc. 70:2961-2963, Sept. 1948.
Microbiological utilization and disposal of wood-processing wastes.	Harris, E.E., & Johnson, M.C.	Paper Ind. Paper World 30:940-942, Sept. 1948.
*Animal feeds from wood residue.	Harris, E.E.	Forest Prod. Res. Soc. Proc. 2:60-65, 1948; Wood Working Digest 50 (7):75-82, July 1948.
Fodder yeast from wood hydrolyzates and still residues.	Harris, E.E., Saeman, J.F., Marquardt, R.R., Hannan, M. L., & Rogers, S.C.	Ind. Eng. Chem. 40: 1220, July 1948.
Fermentation of wood hydrolyzates by <u>Torula utilis</u> .	Harris, E.E., Hannan, M.L., Marquardt, R.R., & Bubl, J.L.	Ind. Eng. Chem. 40: 1216, July 1948.

*Not available at Forest Products Laboratory.

CONVERSION OF WOOD (continued)

Biochemical Conversion (continued)

Title	Author	Publication and Date
*Wood molasses: low-value timber can be made into live-stock feed.	Harris, E. E.	Naval Stores Rev. 58 (17): 14, July 1948.
*Alcohol from Douglas-fir waste.	Harris, E. E.	Timberman 47(11): 40, Sept. 1946; 48(1): 40, Nov. 1946; 49(4): 68-76, Feb. 1948.
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*Butanol-acetone fermentation of wood sugar.	Leonard, R. H., Peterson, W. H., & Ritter, G. J.	Ind. Eng. Chem. 39(11): 1443-1446, Nov. 1947.
*Production of fodder yeast.	Harris, E. E., Hannan, M. L., & Marquardt, R. R.	Paper Trade J. 125(22): 34-37, Nov. 1947; Abridged-Paper Ind. Paper World 29:879-881, Sept. 1947.
Fermentation of Douglas-fir hydrolyzate by <u>S. cerevisiae</u> .	Harris, E. E., Hajny, G. J., Hannan, M. L., & Rogers, S. C.	Ind. Eng. Chem. 38(9): 896-904, Sept. 1946. FPL Rep. 1618. 1946. +1964.
*Production of wood sugar in Germany and its conversion to yeast and alcohol.	Saeman, J. F., Locke, E. G., & Dickerman, G. K.	Paper Trade J. 123(12): 132-140, Sept. 1946.
*Production of alcohol from Australian woods.	Harris, E. E.	Austral. Council Sci. Ind. Res. J. 19(3): 303-310, Aug. 1946.

*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

CONVERSION OF WOOD (continued)

Biochemical Conversion (continued)

Title	Author	Publication and Date
*Industrial alcohol from wood waste.	Harris, E. E.	South. Lbrman. 171 (2153): 244-248, Dec. 1945.
*Fodder yeast from wood sugar.	Peterson, W.H., Snell, J. F., & Frazier, W. C.	Ind. Eng. Chem. 37(1): 30-35, Sept. 1945.

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Charcoal production in kilns.	Beglinger, E.	Forest Prod. J. 7(11): 399-403, Nov. 1957.
*Charcoal--its manufacture and use.	Beglinger, E., & Locke, E. G.	Econ. Bot. 11(2): 160-173, Apr. -June 1957.
*Many problems confront destructive distillation industry:	Beglinger, E.	Naval Stores Rev. 58(22): 15, Aug. 1948.
*Some observations regarding the status of the wood-distillation industry.	Beglinger, E.	Forest Prod. Res. Soc. Proc. 2:49-54, 1948.

*Not available at Forest Products Laboratory.

CONVERSION OF WOOD (continued)

Chemical Conversion

Title	Author	Publication and Date
Hydrolysis of xylan in different species of hardwoods.	Springer, E.L., & Zoch, L.L.	Tappi 51(5): 214-218. May 1968.
Relationships between some uronic acids and their decarboxylation products.	Feather, M.S., & Harris, J.F.	J. Org. Chem. 31: 4018-4021, Dec. 1966.
Hydrolysis of aspenwood xylan with aqueous solutions of hydrochloric acid.	Springer, E.L.	Tappi 49(3): 102-106. Mar. 1966.
Influence of sodium xylene-sulfonate on the yield of furfural from aqueous acidified xylose solutions.	Smuk, J.M., & Zoch, L.L.	Tappi 49(2): 90-91, Feb. 1966.
Rate of D-xylose degradation in hydrochloric acid-sodium chloride-water solutions.	Smuk, J. M., Harris, J.F., & Zoch, L. L.	J. Phys. Chem. 70(1): 71-77. Jan. 1966.
Delignification of aspen wood with acidified aqueous solutions of sulfolane.	Springer, E.L., & Zoch, L.L.	Svensk Papperstidn 69, 16:513-516, 1966.
*The acid-catalyzed hydrolysis of glycopyranosides.	Feather, M.S., & Harris, J.F.	J. Org. Chem. 30: 153-157, 1965.
Furfural yield and decomposition in sodium 2,4-dimethylbenzene-sulfonate-sulfuric acid-water solutions.	Smuk, J.M., & Zoch, L.L.	U.S. Forest Serv. Res. Paper FPL 32, 1965.
Rate of D-xylose decomposition in sulfuric acid-sodium 2,4 dimethylbenzene-sulfonate-water solutions.	Smuk, J.M., Harris, J.F., & Zoch, L.L.	U.S. Forest Serv. Res. Paper FPL 20, 1965.

*Not available at Forest Products Laboratory.

CONVERSION OF WOOD (continued)

Chemical Conversion (continued)

Title	Author	Publication and Date
Rate studies of the hydro- tropic delignification of aspenwood.	: Springer, E. L., : Harris, J. F., & : Neill, W. K.	: Tappi 46(9): 551-555, : Sept. 1963.
*Wood as a chemical raw material.	: Harris, J. F., : Saeman, J. F., : & Locke, E. G.	: "The Chemistry of Wood," : Chap. 11, pp. 535-585. : Interscience Publishers, : New York, N.Y. 1963.
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Pt. I: Separation and utiliza- tion of hardwood hemicell- uloses.	: Harris, J. F., : Saeman, J. F., : & Locke, E. G.	: Forest Prod. J. 8(9): : 248-252, Sept. 1958.
Pt. II: Kinetics of the acid- catalyzed conversion of xylose to furfural.	: Root, D. F., : Neill, W. K., : Saeman, J. F., : & Harris, J. F.	: Forest Prod. J. 9(5): : 158-165, May 1959.
Pt. III: Preparation and properties of hydroxymethyl- furfural.	: Harris, J. F., : Saeman, J. F., : & Zoch, L. L.	: Forest Prod. J. 10(2): : 125-128, Feb. 1960.
Pt. IV: Economics of the production of furfural from xylose solutions.	: Harris, J. F., : & Smuk, J. M.	: Forest Prod. J. 11(7): : 303-309, July 1961.
Pt. V: Kinetics of the acid- catalyzed conversion of glucose to 5-hydroxymethyl- 2-furaldehyde and levulinic acid.	: McKibbins, S. W., : Harris, J. F., : Saeman, J. F., : & Neill, W. K.	: Forest Prod. J. 12(1): : 17-23, Jan. 1962.

*Not available at Forest Products Laboratory.

CONVERSION OF WOOD (continued)

Chemical Conversion (continued)

Title	Author	Publication and Date
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Hydrogenolysis of sorbitol.	: Clark, I.T.	: Ind. Eng. Chem. 50(8): 1125-1126, Aug. 1958.
Wood saccharification--A summary statement.	: Hall, J.A., Saeman, J.F., & Harris, J.F.	: Unasylva 10(1): 7-16, Feb. 1956.
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*Wood-sugar molasses from wood waste.	: Harris, E.E.	: South. Lbrman. 175 (2201): 157-161, Dec. 1947.

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+Information reviewed and reaffirmed.

CONVERSION OF WOOD (continued)

Chemical Conversion (continued)

Title	Author	Publication and Date
*Hydrolysis of wood cellulose and decomposition of sugar in dilute phosphoric acid.	: Harris, E.E., & Lang, B.G.	: J. Phys. Colloid Chem. 51:1430-1441, Nov. 1947.
*The Madison wood-sugar process.	: Harris, E.E., & Beglinger, E.	: Ind. Eng. Chem. 38(9): 890, Sept. 1946.
*Kinetics of the hydrolysis of wood and of the decomposition of sugars in dilute acid at high temperatures.	: Saeman, J. F.	: Ind. Eng. Chem. 37(1): 43, Jan. 1945.
*The rotary digester in wood saccharification.	: Plow, R.H., Saeman, J.F., Turner, H.D., & Sherrard, E.C.	: Ind. Eng. Chem. 37(1): 36, Jan. 1945.
*Hydrolysis of wood in a stationary digester by successive treatments with dilute sulfuric acid.	: Harris, E.E., Beglinger, E., Hajny, G.J., & Sherrard, E.C.	: Ind. Eng. Chem. 37(1): 12, Jan. 1945.
*A review of wood saccharification processes in the United States prior to World War II.	: Sherrard, E.C., & Kressman, F.W.	: Ind. Eng. Chem. 37(1): 5, Jan. 1945.
*The quantitative saccharification of wood and cellulose.	: Saeman, J.F., Bubl, J.L., & Harris, E.E.	: Ind. Eng. Chem. (Anal. Ed.) 17(1): 35, Jan. 1945.

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*Not available at Forest Products Laboratory.

CONVERSION OF WOOD (continued)

Modified Woods (continued)

Title	Author	Publication and Date
Dimensional stabilization of hardboard by acetylation.	Klinga, L.O., & Tarkow, H.	Tappi 49(1): 23-27, Jan. 1966.
Dimensional stability.	Tarkow, H.	Encyc. of Polymer Sci. & Tech. 5: 98-121, 1966.
Basic properties of yellow birch laminates modified with phenol and urea resins.	Erickson, E.C.O., & Faulkes, W.F.	U.S. Forest Serv. Res. Note FPL-0140. 1966.
Dimensional stabilization of hardboard by combined acetylation and heat treatment.	Klinga, L.O., Tarkow, H., & Back, E.L.	Svensk Pappstidn. 68(17): 583-587, 1965.
U.S. Forest Products Laboratory notes on the treatment of wood with polyethylene glycol.		U.S. Forest Serv. Res. Note FPL-06. 1963.
*Conservation of 200-year-old waterlogged boats with polyethylene glycol.	Seborg, R.M., & Inverarity, R.B.	Studies in Conservation 7(4): 111-119, Nov. 1962.
Preservation of old, waterlogged wood by treatment with polyethylene glycol.	Seborg, R.M., & Inverarity, R.B.	Sci. 136(3516): 649-650, May 1962.
Modified woods.	Stamm, A.J.	FPL Rep. 2192. Rev. 1962.
Forest Products Laboratory resin-treated wood (impreg).	Stamm, A.J., & Seborg, R.M.	FPL Rep. 1380. Rev. 1962.

*Not available at Forest Products Laboratory.

CONVERSION OF WOOD (continued)

Modified Woods (continued)

Title	Author	Publication and Date
Effectiveness of stabilized surface layers of wood as moisture barriers.	Tarkow, H., & Ishaq, S.M.	Forest Prod. J. 11(4): 203-204, Apr. 1961.
Board materials from wood residues.		FPL Rep. 1666-21. Rev. 1961.
Decay resistance and dimensional stability of five modified woods.	Stamm, A.J., & Baechler, R.H.	Forest Prod. J. 10(1): 22-26, Jan. 1960.
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*General summary of the FPL wood stabilization seminar.	Tarkow, H.	Forest Prod. J. 9(3): 110-111, Mar. 1959.
*Toward new and better means of dimensionally stabilizing wood.	Stamm, A.J.	Forest Prod. J. 9(3): 107-110, Mar. 1959.
*Dimensional stabilization of paper by catalyzed heat treatment and cross-linking with formaldehyde.	Stamm, A.J.	Tappi 42(1): 44-50, 1959.
Dimensional stabilization of wood by thermal reactions and formaldehyde cross-linking.	Stamm, A. J.	Tappi 42(1): 39-44, 1959.

*Not available at Forest Products Laboratory.

CONVERSION OF WOOD (continued)

Modified Woods (continued)

Title	Author	Publication and Date
Report of dimensional stabilization seminar held at U.S. Forest Products Laboratory, Madison, Wis., Jan. 21-23, 1959.		FPL Rep. 2145. 1959. +1964.
Effect of resin treatment and compression upon the weathering properties of veneer laminates.	Lloyd, R.A., & Stamm, A.J.	Forest Prod. J. 8(8): 230-235, 1958.
Effect of storage on phenolic resins and their ability to stabilize wood dimensions.	Seborg, R.M., & Tarkow, H.	Forest Prod. J. 7(8): 256-261, Aug. 1957.
Dimensional stabilization of wood with carbowaxes.	Stamm, A.J.	Forest Prod. J. 6(5): 201-204, May 1956.
Swelling and dimensional control of paper:		
I. Effect of wet-strength resins and carbowax.	Stamm, A.J., & Cohen, W.E.	Austral. Pulp Paper Ind. Tech. Assoc. Proc. 10:346-365, 1956.
II. Effect of cyanothylation, acetylation and cross-linking with formaldehyde.	Stamm, A.J., & Cohen, W.E.	Austral. Pulp Paper Ind. Tech. Assoc. Proc. 10:366-393, 1956.
Application of impreg for patterns and die models.	Seborg, R.M., & Vallier, A.E.	Forest Prod. J. 4(5): 305-312, Oct. 1954; Woodworking Digest 56 (11): 123-136, Nov. 1954.

+Information reviewed and reaffirmed.

CONVERSION OF WOOD (continued)

Modified Woods (continued)

Title	Author	Publication and Date
*Effect of particle size and shape on strength and dimensional stability of resin-bonded wood-particle panels.	Turner, H.D.	Forest Prod. J. 4(5): 210-223, Oct. 1954.
Effect of heat upon the dimensional stabilization of wood.	Seborg, R. M., Tarkow, H., & Stamm, A.J.	Forest Prod. J. 3(3): 59-67, Sept. 1953.
Effect of formaldehyde treatments upon the dimensional stabilization of wood.	Tarkow, H., & Stamm, A.J.	Forest Prod. J. 3(2): 33-37, June 1953.
*Modified woods.	Locke, E.G.	Forest Prod. J. 2(4): 54-56, Nov. 1952.
Forest Products Laboratory resin-treated, laminated, compressed wood (compreg).	Stamm, A.J., & Seborg, R.M.	FPL Rep. 1381. Rev. 1951. +1960.
Acetylated wood.	Tarkow, H., Stamm, A.J., & Erickson, E.C.O.	FPL Rep. 1593. Rev. 1950. +1960.
Relation of several formation variables to properties of phenolic-resin-bonded wood-waste hardboards.	Turner, H.D., & Kern, J.D.	FPL Rep. 1786. 1950. +1962.
*Swelling and shrinking of wood, paper, and cotton textiles and their control.	Tarkow, H.	Tappi 32:203-211, May 1949.

*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

CONVERSION OF WOOD (continued)

Modified Woods (continued)

Title	Author	Publication and Date
*A means of determining the hardness of wood and modified woods over a broad specific gravity range.	Weatherwax, R.C. Erickson, E.C.O. & Stamm, A.J.	ASTM Bul. 153 (TP 176), Aug. 1948.
*Small-scale manufacture of insulating boards from wood waste.		H&HFA Tech. Bul. 5, p. 39, July 1948. Out of print.
*Sawdust-binder compositions.	Gabriel, A. E.	Modern Plastics 25(8): 145-146, 200-216, Apr. 1948.
*Dimensional stability of synthetic board materials used as core stock.	Millett, M. A., & Hohf, J. P.	Forest Prod. Res. Soc. Proc. 2:280-288, 1948.
Effect of some manufacturing variables on the properties of fiberboard prepared from milled Douglas-fir.	Turner, H. D., Hohf, J. P., & Schwartz, S. L.	Forest Prod. Res. Soc. Proc. 2:100-114, 1948.
*Modified woods.	Stamm, A. J.	Modern Plastics Ency- clopedia, p. 725, 1948.
Wood treatment with urea resin-forming systems: a study of size and species limitations.	Millett, M. A., & Stamm, A. J.	Modern Plastics 25: 125-127, Sept. 1947. FPL Rep. 1703. 1947. +1964.
*Treatment of wood with urea resin-forming systems: comparison with phenolic resins for making compreg.	Millett, M. A., & Stamm, A. J.	Modern Plastics 24(6): 159-160, 208, 210, 212, Feb. 1947.

*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

CONVERSION OF WOOD (continued)

Modified Woods (continued)

Title	Author	Publication and Date
*Compreg.	: Stamm, A.J.	: Modern Plastics Ency-
	:	: clopedia 1:705-707, 1947.
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*Dimensional stabilization of wood.	: Stamm, A.J., &	: J. Phys. Colloid Chem.
	: Tarkow, H.	: 31:493, 1947.
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*Modified woods.	: Stamm, A.J.	: Amer. Wood-Preservers'
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Staybwood: heat-stabilized wood.	: Stamm, A.J.,	: Ind. Eng. Chem. 38:
	: Burr, H.K., &	: 630, 1946. FPL Rep. 1621.
	: Kline, A.A.	: Rev. 1955. +1960.
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*Treatment of wood with urea resin-forming systems: dimensional stability.	: Millett, M.A., &	: Modern Plastics 24(2):
	: Stamm, A.J.	: 150, 1946.
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*Wood for storage-battery separators.	: Peakes, L.V.,	: Ind. Eng. Chem. Ind. Ed.
	: Lloyd, R.A.,	: 38:780, 1946.
	: Barnes, V.S.,	:
	: Berry, J.H., &	:
	: Ritter, G.J.	:
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*Pulp-reinforced plastics.	: Schwartz, S.L.,	: South. Pulp Paper J. 8(3):
	: Pew, J.C., &	: 19, Aug. 1945.
	: Meyer, H.R.	:
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Heat-stabilized compressed wood (staypak).	: Seborg, R.M.,	: Mech. Eng. 67(1): 25-31,
	: Millett, M.A., &	: 1945. FPL Rep. 1580.
	: Stamm, A. J.	: Rev. 1962.
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*Pulps for pulp-reinforced plastics.	: Schwartz, S.L.,	: Paper Trade J. 121(2):
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	: Meyer, H.R.	:
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*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

CONVERSION OF WOOD (continued)

Modified Woods (continued)

Title	Author	Publication and Date
The electrical resistivity of resin-treated wood (impreg and compreg), hydrolyzed-wood sheet (hydroxylin), and laminated resin-treated paper: papreg.	: Weatherwax, R.C., : & Stamm, A.J.	: Elec. Eng. Trans. 64:833, : 1945. FPL Rep. 1385, : 1943. +1963.
*New applications of wood and paper.	: Stamm, A.J.	: "The New Plastics," : Chap. 8, pp. 197-228. : D. Van Nostrand & Co., : Inc., New York, N.Y. : 1945.
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Comparison of commercial water-soluble phenol-formaldehyde resinoids for wood impregnation.	: Burr, H.K., & : Stamm, A.J.	: FPL Rep. 1384. 1945. : +1956.
Influence of manufacturing variables on the impact resistance of resin-treated wood.	: Millett, M.A., : Seborg, R.M., & : Stamm, A.J.	: FPL Rep. 1386. 1943. : +1962.
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*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

PHYSICAL PROPERTIES OF WOOD

Microstructure

Title	Author	Publication and Date
*Asymmetrical permeability of composite laminates.	Tarkow, H.	Forest Prod. J. 13(8): 318, Aug. 1963.
Distribution of hot-water soluble material in cell walls and cavities of redwood.	Tarkow, H., & Krueger, J.	Forest Prod. J. 11(5): 228-229, May 1961.
Determining the distribution of interstructural openings in wood.	Stamm, A.J., & Wagner, E.	Forest Prod. J. 11(3): 141-144, Mar. 1961.
Combined bound-water and water-vapor diffusion into Sitka spruce.	Stamm, A.J.	Forest Prod. J. 10(12): 644-648, Dec. 1960.
Bound water diffusion into wood in across-the-fiber directions	Stamm, A.J.	Forest Prod. J. 10(10): 524-528, Oct. 1960.
Diffusion through air-filled capillaries of softwoods.		
I. Carbon dioxide.	Tarkow, H., & Stamm, A.J.	Forest Prod. J. 10(5): 247-250, May 1960.
II. Water vapor.	Tarkow, H., & Stamm, A.J.	Forest Prod. J. 10(6): 323-324, June 1960.
*Measurement of internal stresses by radiofrequency spectroscopy.	Gutowsky, H.S., Bernheim, R.A., & Tarkow, H.	J. Polymer Sci. 44:143, 1960.
Bound water diffusion into wood in the fiber direction.	Stamm, A.J.	Forest Prod. J. 9(1): 27-32, Jan. 1959.

*Not available at Forest Products Laboratory.

PHYSICAL PROPERTIES OF WOOD (continued)

Microstructure (continued)

Title	Author	Publication and Date
Swelling pressure of wood.	Tarkow, H., & Turner, H.D.	Forest Prod. J. 8(7): 193-197, July 1958.
Diffusion of water into uncoated cellophane. I. From rates of water vapor adsorption and liquid water adsorption. II. From steady-state diffusion measurements.	Stamm, A.J.	J. Phys. Chem. 60(1): 76-86, Jan. 1956.
Diffusion in cellulosic materials.	Stamm, A.J.	Austral. Pulp Paper Ind. Tech. Assoc. Proc. 10:244-271, 1956.
Diffusion and penetration mechanism of liquids into wood.	Stamm, A.J.	Pulp Paper Mag. Canada 54(2): 54-63, Feb. 1953.
The reaction of formic acid with carbohydrates. I. The reaction of formic acid with sugars. II. Polysaccharides; a new method for determining accessibility.	Tarkow, H., & Stamm, A.J.	J. Phys. Chem. 56(2): 262-271, Feb. 1952.
*Fiber studies contributing to the differential shrinkage of cellulose.	Ritter, G.J., & Mitchell, R.L.	Paper Ind. 33(10): 1189-1193, Jan. 1952.
Microscopic polarized light method for studying cellulose fibers.	Ritter, G.J.	Paper Ind. 33(8): 926-931, Nov. 1951.

*Not available at Forest Products Laboratory.

PHYSICAL PROPERTIES OF WOOD (continued)

Microstructure (continued)

Title	Author	Publication and Date
*Accessibility of cellulose.	: Tarkow, H.	: Tappi 33(12): 595-599, : Dec. 1950.
*Specific volume of native cellulose.	: Stamm, A.J.	: Textile Res. J. 20(9): : 631-636, Sept. 1950.
Penetration of cellulose fibers.	: Stamm, A.J., & : Tarkow, H.	: J. Phys. Colloid Chem. : 54(6): 745-753, June 1950.
*Passage of materials through wood, paper, cellulosic membranes and fabrics.	: Stamm, A.J.	: Tappi 32:193-199, May 1949.
*Membranous substances in common heartwoods.	: Pew, J.C.	: J. Forestry 47:196-199, : Mar. 1949.
*Wood, a limited-swelling gel.	: Stamm, A.J., & : Tarkow, H.	: J. Phys. Colloid Chem. : 53:251-260, Feb. 1949.
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*Microstructure of wood and wood components.	: Ritter, G.J.	: Paper Mill News 71(38): : 13, Sept. 1948.
*The passage of water through the capillary structure of wood.	: Stamm, A.J.	: Faraday Soc. Discuss., : pp. 264-273, 1948.
*Diffusion in wood.	: Burr, H.K., & : Stamm, A.J.	: J. Phys. Colloid Chem. : 51-240, 1947.
*Not available at Forest Products Laboratory.		

PHYSICAL PROPERTIES OF WOOD (continued)

Microstructure (continued)

Title	Author	Publication and Date
The coefficients of thermal expansion of wood and wood products.	Weatherwax, R.C. & Stamm, A.J.	Amer. Soc. Mech. Eng. Trans. 69(44): 421, 1947. FPL Rep. 1487. 1946. +1964.
*Passage of liquids, vapors, and dissolved materials through softwoods.	Stamm, A.J.	USDA Tech. Bul. 929, Oct. 1946. Out of print.
<u>Reactions</u>		
Light-induced free radicals in wood.	Kalnins, M.A., Steelink, C., & Tarkow, H.	U.S. Forest Serv. Res. Paper FPL 58, 8 pp., 1966.
Changes in dimension on heating green wood.	Yokota, T., & Tarkow, H.	Forest Prod. J. 12(1): 43-52, Jan. 1962.
Interaction of moisture and wood.	Tarkow, H.	FPL Rep. 2198. 1960.
*Swelling of wood and fiber-boards in liquid ammonia.	Stamm, A.J.	Forest Prod. J. 5(6): 413-416, Dec. 1955.
Treatment of wood with aqueous solutions: Effect of wetting agents.	Stamm, A.J., & Petering, W.H.	Ind. Eng. Chem. 32:809, 1940. FPL Rep. 1229. 1940. +1960.
Thermodynamics of the swelling of wood.	Stamm, A.J., & Loughborough, W. K.	FPL Rep. 1215. 1935. +1960.
Swelling of wood.	Stamm, A.J.	FPL Rep. 1061. 1934. +1961.

*Not available at Forest Products Laboratory.

+Information reviewed and reaffirmed.

PHYSICAL PROPERTIES OF WOOD (continued)

Reactions (continued)

Title	Author	Publication and Date
Effect of inorganic salts upon the swelling and the shrinking of wood.	Stamm, A.J.	FPL Rep. 1156. 1934. +1965.

Surface Properties

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Note: Copies of patents are available from the U.S. Patent Office, Washington, D.C., for 25 cents each.

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Fire Performance	
Fungus and Insect Defects in Forest Products	Sandwich Construction
	Thermal Properties of Wood
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